be achieved through about 1000 small hydro power projects. These projects are likely to be set up by State Governments, either through their own resources or involvement of private sector.

(b) In order to bring in additionality of resources and speedy completion of small hydro power projects, the concept of formation of Joint Sector companies is being examined by various States. This, however, depends upon the investment environment and overall policies of State Governments.

(c) and (d) No, Sir. Neither has such an Expert Committee been set up by this Ministry nor has any Report been submitted to this Ministry.

(e) The projects are likely to be set up in the various States, depending upon the availability of potential and financial resources.

## SOLAR ENERGY PROJECTS OF GUJARAT

3217. SHRI CHIMANBHAI HARIBHAI SHUKLA : Will the PRIME MINISTER be pleased to state :

(a) the amount of the loan-assistance provided by the Central Government to the State Government of Gujarat during each of the last five years for solar energy project;

(b) the details of the works/programmes undertaken, implemented with this assistance in each district, during the above period; and

(c) the location where such works/programmes are being undertaken/implemented during 1992-93 and 1993-94 and as on date ?

THE MINISTER OF STATE IN THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES AND MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (SHRI S. KRISHNAKUMAR) : (a) to (c) The amount of loan/assistance provided by the Central Government to the Government of Gujarat for Solar Energy Projects and Status of physical achievements in respect of installation of various solar energy systems and devices during each of the last five years is given at Statement. (*See* below). The programmes covered in the Statement 'A' are being undertaken throughout the State of Gujarat.

**Statement**

*Details of Loan/Assistance given and Status of Installation of Solar Energy Devices in State of Gujarat during the last five years.*

(Rupees in lakhs)

| Sl. No. | Name of System | Unit | 88-89 | 89-90 | 90-91 | 91-92 | 92-93 | 93-94* |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| I. | Funds Released | Rs. | 91.63 | 97.75 | 166.47 | 119.92 | 181.15 | |
| II. | Systems Installed | | | | | | | |
| 1. | Industrial Solar Water Heaters | LPD | 333900 | 355400 | 228150 | 178350 | 223300 | 278100 |
| 2. | Domestic Solar Water Heaters | LPD | 133950 | 162100 | 131000 | 175150 | 114650 | |
| 3. | Solar Stills | LPD | 1212 | 939 | 306 | 1017 | 729 | 36 |
| 4. | Solar Hot Air System | $m^2$ | — | 4 | 20 | 4 | 12 | 4 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
| 5. | Solar Timber Kiln | $m^2$ | 45 | 10 | 35 | 10 | 10 | — |
| 6. | Solar Cooker (Family) | Nos. | 4101 | 2559 | 2666 | 3544 | 1898 | 1039 |
| 7. | Solar Cooker (Community) | Nos. | 98 | 34 | 8 | 13 | 24 | 1 |
| 8. | Solar Street Lights | Nos. | 63 | 82 | 54 | 15 | 25 | — |
| 9. | Solar Domestic Lights | Nos. | 45 | 105 | 25 | 120 | 35 | — |
| 10. | Solar Pumps | Nos. | 9 | 13 | 1 | — | — | — |
| 11. | Solar T.V. System | Nos. | 21 | 19 | 2 | 1 | — | — |
| 12. | Solar Power Plant | KVp. | 4 | — | — | 10 | — | — |
| 13. | Solar Lights on Fishing Boats. | Nos. | — | 55 | 3 | — | — | — |

*Till November, 1993.

**RESEARCH WORK TO FIND OUT NEW TYRES NON-CONVENTIONAL ENERGY SOURCES**

3218. SHRI TINDIVANAM G. VENKATRAMAN :

SHRI J. S. RAJU :

SHRI MISA R. GANESAN :

Will the PRIME MINISTER be pleased to state :

(a) what are the non-conventional energy sources in vogue in India;

(b) what are the incentives given by Government to find out new type of non-conventional energy sources in research work;

(c) how many research institutes for the purpose are existing in our country;

(d) what is the amount of money spent so far on this programme;

(e) whether the research work so far is commensurate to the expanded amount in this connection; and

(f) if not, what is the reason for the slow progress ?

THE MINISTER OF STATE IN THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES AND MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (SHRI S. KRISHNA KUMAR) : (a) Various non-conventional energy source-based technologies in vogue in India are Biogas, Improved Chulhas, Solar Thermal, Solar Photovoltaic, Bio-energy, Wind Energy, Small Hydro-Power, Animal Energy and Battery and Alcohol operated vehicles.

(b) The Government is extending financial assistance for research and development activities.

(c) The number of research organisations including IITs, scientific, technical and educational institutions, CSIR Laboratories, autonomous voluntary bodies and public and private sector research establishments exceed 100.

(d) Since the time of the Sixth Five Year Plan (1980—85), an amount of about Rs. 260 crores has been spent so far on the research and development activities in the field of non-conventional energy sources.

(e) Yes, Sir. The research and development efforts made in this direction have led to the commercialisation and mass utilisation of several technologies and products.

(f) Does not arise.